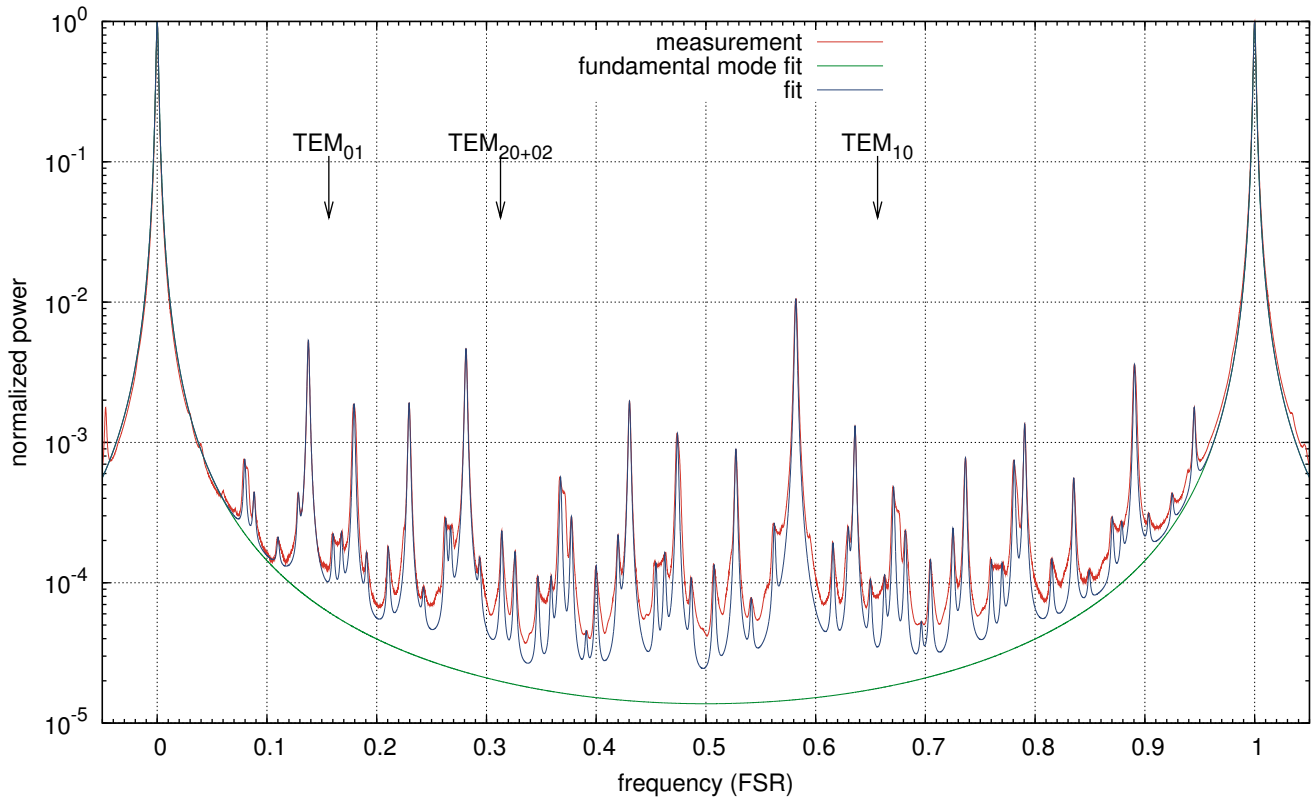
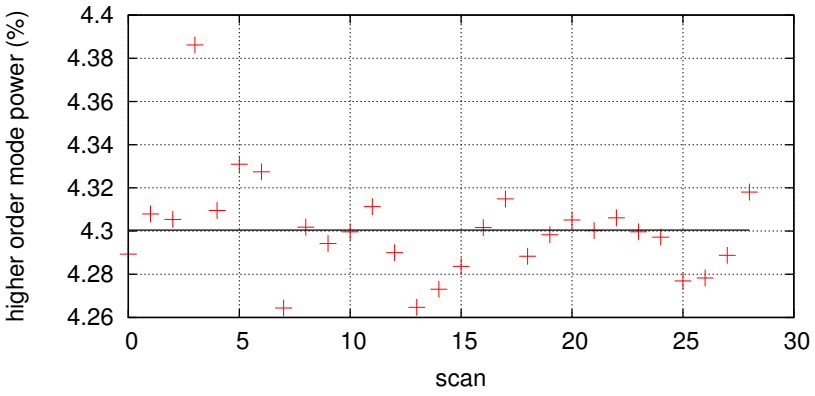
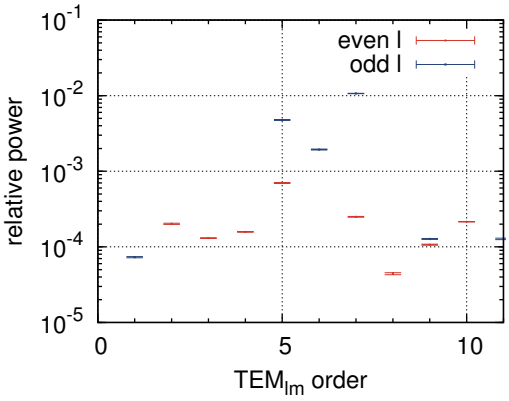
DBB – modescan

noisereport







D B B	
Diagnostic breadboard:	DBID 0308, scan mode (3)
Selected laser beam:	35W laser (DBB shutter open)
Power in DBB (RPD.DC):	8.9 V
Beam alignment:	pre-alignment on
Modematching lens positions:	lens 1 (ML_1) = -2.0 mm, lens 2 (ML_2) = 4.8 mm, lenses not latched

M O D E S C A N	
Measurement:	29 scans, 11. Feb 2013 15:27 PST
Scan ramp:	0.500 Hz, 30000 Cts
PZT calibration deviation:	-4.9% ± 0.0%
Resolution (samples):	65537 ± 5.5 s/ramp, 12244 ± 0.9 s/FSR, 29 ± 0.0 s/linewidth
Photodetector signal (TPD):	0.000 V . . . 8.430 V
Finesse:	421.2 ± 0.4
Roundtrip Gouy phase:	0.156400 ± 0.000000 FSR
Relative misalignment (X,Y):	0.009 ± 0.000, nan ± 0.000
Relative mismodematching:	0.014 ± 0.000
Higher order mode count:	58.7 ± 0.5
Higher order mode power:	4.3% ± 0.023%

D A Q	
Measurement duration:	60 s = 1.0 min
Measurement start:	11. Feb 2013 15:27 PST (11. Feb 2013 23:27 UTC, 1044660446 GPS)
NDS:	h1nds1:8088 (v12r0)
User:	psl@operator2
Channels:	H1:PSL-DBB_TPD_VALUE_OUT 65536 Hz, H1:PSL-DBB_MON_HV_OUT 65536 Hz, H1:PSL-DBB_SHUTTER 16 Hz, H1:PSL-DBB_RPD_DC_OUTPUT 16 Hz, H1:PSL-DBB_CTRL_QSWITCH_ON 16 Hz, H1:PSL-DBB_LENS1 16 Hz, H1:PSL-DBB_LENS2 16 Hz, H1:PSL-DBB_LENS_LATCH 16 Hz, H1:PSL-DBB_DBID 16 Hz, H1:PSL-DBB_MON_SHUTTER_CLOSED 16 Hz, H1:PSL-DBB_MODE_NUM 16 Hz, H1:PSL-DBB_RAMP_SCAN_FREQ 16 Hz, H1:PSL-DBB_RAMP_SCAN_AMP 16 Hz
Raw data:	rawdata.zip (attached to this .pdf file, use Adobe Reader)
Calibration:	default.cali (embedded), 01. Jan 1970 00:00 UTC
Report source files:	report.zip (attached to this .pdf file, use Adobe Reader)
Program:	dbb_msc.py v0.6, Patrick Kwee, patrick.kwee@aei.mpg.de

I N F O
Measurement method: The DBB PMC was scanned by several FSRs by applying a high voltage ramp to the PMC PZT. The power transmitted through the PMC was measured with a high dynamic range photo detector as function of the applied PZT high voltage signal. Peaks of higher order transversal modes were detected by software post-processing. The total power in higher order modes was calculated to determine the beam quality of the laser beam. The resonance frequency of the peaks was used to identify the mode order. Detailed information about the measurement method and instructions for performing this measurement are available in Kwee et al., Rev. Sci. Instrum., 78:1–10, 2007; Kwee et al., Appl. Opt., 47(32):6022–6032, 2008; LIGO-T0900133; LIGO-T0900579.
no comment